NOTE

Introducing Time-Limited Permits to California's Riparianism

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 Many thanks to Professor Karrigan Börk for his invaluable guidance and feedback. I am also grateful to Elizabeth Wilson, Christine Hanon, Natalie Maas, and all other Members and Editors of the *UC Davis Law Review*, without whom this Note would not have been possible.

INTRODUCTION

In the spring of 2021, drought conditions in California rapidly went from bad to worse.[1] After years of high temperatures, large-scale wildfires, and increasingly dry soils, the Sierra snowpack shrunk by nearly eighty percent in a single month.[2] In a good year, runoff from the snowpack feeds into dozens of Northern California rivers and reservoirs — it runs through the Sacramento-San Joaquin Delta watershed, which supplies water to over two thirds of Californians and to millions of acres of farmland.[3] But the dry soils and high temperatures in 2021 meant that little of the snow melt made its way into California's rivers and streams.

Water shortages in California are nothing new,[4] and the many varying effects of climate change have been readily observable in the state for many years.[5] But even climate experts were caught off guard by the rapid shrinkage of the snowpack, with state officials calling it "beyond unprecedented."[6] Although climate change models had forecasted that the runoff might be in jeopardy, such scenarios were not expected for decades.[7] By the middle of May, most California counties — 41 out of 58 total — were in a declared drought emergency.[8] May and June of 2021

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[1] *See* Julia Wick, '*Running Out of Options*': *California Resorts to Water Cutoffs as Drought Worsens*, L.A. TIMES (Aug. 4, 2021, 10:35 AM PT), https://www.latimes.com/california/story/2021-08-04/california-drought-water-restrictions-how-bad-is-it [https://perma.cc/7D4R-XRZN].

[2] *Id.*

[3] *Id.*

[4] *See, e.g.*, Cal. Water Sci. Ctr., *2012-2016 California Drought: Historical Perspective*, U.S. GEOLOGICAL SURV., https://ca.water.usgs.gov/california-drought/california-drought-comparisons.html (last visited Oct. 7, 2022) [https://perma.cc/25VJ-7XTZ] (providing background and data on California's history of drought).

[5] *See, e.g.*, Scott Wilson, *Fires, Floods, and Free Parking: California's Unending Fight Against Climate Change*, WASH. POST (Dec. 5, 2019), https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-california/ [https://perma.cc/2PRE-6DVG] (quoting a Santa Barbara county supervisor as saying "[b]efore the [Thomas] [F]ire and [2018 Southern California mudflows], people here thought of climate change in similar ways as they thought of the refugee crisis in other parts of the world — something important but remote . . . . Now, I'm confronted with the fact we had a mass casualty event that was climate enhanced.").

[6] Wick, *supra* note 1.

[7] *Id.*

[8] *Id.*

were the warmest and driest on record since 1896, causing major reservoirs to project historic lows.[9]

Although California's system of water rights is designed to facilitate efficient allocation in times of shortage, the current crisis is so severe that the state has been forced to take more drastic measures than ever before.[10] In a particularly controversial move, on August 3, 2021, the State Water Resources Control Board voted unanimously to pass an emergency regulation giving the state the authority to curtail about 12,500 private water rights.[11] The regulation prevents about 5,700 Northern California and Central Valley water rights holders from diverting stream and river water and imposes hefty fines on illegal diverters.[12]

The move drew sharp criticism from growers and their representatives on both sides of the political aisle, with one Democratic assemblyman from Merced calling the orders "one of the most destructive measures possible," and questioning whether the board had the authority to order curtailments for senior water rights holders.[13] Some growers organizations similarly argued the Board did not have the authority to curtail private water rights for users with claims for properties adjacent to waterways of that pre-date the 1914 enactment of California's water rights law.[14] And others questioned whether the Water Board acted too quickly or violated due process principles in stripping senior water rights holders of their water use privileges.[15]

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[9] Rachel Becker, *Facing 'Dire Water Shortages,' California Bans Delta Pumping*, CALMATTERS (Aug. 3, 2021), https://calmatters.org/environment/drought-2021/2021/08/california-water-shortage-delta-pumping/ [https://perma.cc/BR33-H88R].

[10] Wick, *supra* note 1.

[11] Emergency Curtailment Regulation to Protect Water Supplies in the Sacramento-San Joaquin Delta Watershed, (July 20, 2022) (to be codified at CAL. CODE REGS. tit. 23, §§ 877.1, 878, 878.1, 879.2, 879.3, 876.1, 878.2, 879), https://www.waterboards.ca.gov/drought/delta/docs/2022/finalregtext-clean-072022.pdf [https://perma.cc/58H6-YLK7].

[12] *See id.*; Becker, *supra* note 9; Wick, *supra* note 1. In the same month, curtailment orders were issued to around 900 water users along the Russian River. Becker, *supra* note 9.

[13] Becker, *supra* note 9.

[14] *Id.*

[15] *Compare* Statement of Decision, Phase I Trial at 38, California Water Curtailment Cases, 2015-1-CV-285182 (Super. Ct. Feb. 21, 2018) (finding that the Board violated petitioners' due process rights by issuing curtailment notices ordering immediate curtailments without first providing water users the opportunity to challenge the

Meanwhile, regulators maintained that the curtailments were necessary to address "immediate and dire water shortages,"[16] stressing that the state is "running out of options,"[17] and that failing to pass the emergency regulations would result in "catastrophic impacts to reservoir storage needed for human health and safety and other purposes."[18] Many California residents supported the move, and some urged the Board to go even further and consider stopping diversions entirely, regardless of seniority.[19]

As the snowballing effects of climate change continue in increasingly unpredictable ways,[20] tensions over water use will become more common. The current system of water rights — and our system of property law more generally — was not built to accommodate major external changes in the environment, while also maintaining fairness and

findings on which the orders were based), *with* Stanford Vina Ranch Irrigation Co. v. California, 264 Cal. Rptr. 3d 509, 530 (Ct. App. 2020) (rejecting the plaintiff's due process argument).

[16] Becker, *supra* note 9.

[17] Wick, *supra* note 1.

[18] STATE WATER RES. CONTROL BD., NOTICE OF PROPOSED EMERGENCY RULEMAKING: ENHANCED WATER USE REPORTING AND CURTAILMENT OF DIVERSIONS DUE TO LACK OF WATER AVAILABILITY IN THE SACRAMENTO-SAN JOAQUIN DELTA WATERSHED 2 (2021), https://www.waterboards.ca.gov/drought/delta/docs/notice_proposedrulemaking_delta.pdf [https://perma.cc/RC7M-RD6P].

[19] *See, e.g.*, Becker, *supra* note 9 ("'We have no water for fire suppression and the fish and wildlife are dying. We have put out water for the wildlife near our property. It is heart-wrenching to see our creek dry,' [one Shasta County resident] wrote. 'These are desperate times and water is so scarce.'").

[20] *See, e.g.*, Jennifer Francis, *Linking Weird Weather to Rapid Warming of the Arctic*, YALE ENV'T 360 (Mar. 5, 2012), https://e360.yale.edu/features/linking_weird_weather_to_rapid_warming_of_the_arctic [https://perma.cc/GFU4-PQ8C] (linking Arctic amplification to increased frequency of extreme weather events); Lisa Shumaker & Andrea Januta, *Killer Heatwaves and Floods: Climate Change Worsened 2021 Weather Extremes*, REUTERS (Dec. 13, 2021, 7:47 AM PST), https://www.reuters.com/markets/commodities/killer-heatwaves-floods-climate-change-worsened-weather-extremes-2021-2021-12-13/ [https://perma.cc/A77L-44PC] (documenting how climate change worsened extreme weather events worldwide); *see also* Anke Jentsch, Jürgen Kreyling & Carl Beierkuhnlein, *A New Generation of Climate-Change Experiments: Events, Not Trends*, 5 FRONTIERS ECOLOGY & ENV'T 365, 365-71 (2007) (describing how climate change science is shifting from being "trend-focused" to "event-focused," reflecting an increase in extreme and unpredictable weather).

addressing efficiency concerns.[21] California's appropriative rights system favors the earliest users and makes transfers difficult,[22] and its continued embrace of riparian rights makes total water use less predictable. In California, this approach tends to favor large agricultural users, who have little to no incentive to reduce their use. And the "first in time, first in right" approach tends toward supporting inefficient uses of water over the long term and makes it difficult for new users to get rights, even if those new uses are more efficient and far more valuable.[23]

This Note explores ways in which California's current system of water rights can be reimagined for the current era. It argues that an effective way to respond to water shortages is to implement a system of time-limited water use permits with options for limited renewal. Part I discusses current California water rights doctrine. Part II addresses how the reasonable and beneficial use doctrines are closely intertwined with public interest concerns. This Part also discusses how takings claims based on time limits can be defeated due to foreseeability and identifies policy reasons for overhauling California's current system of private water rights. Part III proposes term limits on water permits as a viable, long-term solution for the impact of private water rights on California's water supply. Finally, Part IV explains the need for a complete overhaul of private water rights in California and reinforces that the best solution is to create a system of time-limited water use permits.

[21] *See* John G. Sprankling, *Property Law for the Anthropocene Era*, 59 ARIZ. L. REV. 737, 738 (2017).

[22] *See* Joseph W. Dellapenna, *The Evolution of Riparianism in the United States*, 95 MARQ. L. REV. 53, 54 (2011) ("[A]ppropriative rights are . . . largely not transferrable separately from the land for which, or to a different use than the use for which, the water was originally appropriated."). Appropriative rights are claim-based rights, often referred to as "first in time, first in right." *Id.* at 79.

[23] *See, e.g.*, Robert Haskell Abrams, *Prior Appropriation and the Commons*, 37 UCLA J. ENV'T L. & POL'Y 141, 155 (2019) (discussing that despite post-hoc action to address inefficient early users, "prior appropriation doctrine still suffers from old, inefficient, low-value uses that claim large shares of water").

I. PRINCIPLES OF WATER LAW

A. The Doctrine of Prior Appropriation

When early Americans first moved into what is now the western United States, they largely abandoned the English common law doctrine of riparian rights preferred in the eastern United States.[24] Riparian water rights granted a right to use water to those who owned land adjacent to its path.[25] In the West's arid climate, restricting water use to such a small quantity of inhabited land proved to be impractical, since water was often located some distance from where it was needed.[26] The doctrine of prior appropriation was developed in its place to allow for water diversion by miners and farmers.[27] Under the system of prior appropriation, the first person to divert water and put it to "beneficial use" had a property right to that water.[28] The definition of beneficial use has evolved over time, and some uses that were once considered "beneficial" no longer are.[29] As a general rule, the doctrine of beneficial use aims to prohibit waste and speculative monopolization of water resources.[30]

California never got rid of riparian rights and has a hybrid system today, but California water rights remain heavily influenced by the "first in time, first in right" approach. This protects private water users

[24] James L. Huffman, Hertha L. Lund & Christopher T. Scoones, *Constitutional Protections of Property Interests in Western Water*, 41 PUB. LAND & RES. L. REV. 27, 28 (2019).

[25] *See id.*

[26] *Id.*

[27] *Id.* at 29.

[28] *Id.*

[29] *Id.* at 34.

[30] *See id.* at 29. Waste in this context may occur, for example, where an industrial practice uses more water than reasonably necessary or where wasteful diversion tactics are employed. *See* Imperial Irrigation Dist. v. State Water Res. Control Bd., 275 Cal. Rptr. 250, 259 (Ct. App. 1990) (concluding that the State Water Resources Control Board could rule on the question of whether irrigation practices were reasonable or wasteful); CRAIG M. WILSON, STATE WATER RES. CONTROL BD., THE REASONABLE USE DOCTRINE & AGRICULTURAL WATER USE EFFICIENCY: A REPORT TO THE STATE WATER RESOURCES CONTROL BOARD AND THE DELTA STEWARDSHIP COUNCIL 7 (2011), https://www.waterboards.ca.gov/board_info/agendas/2011/jan/011911_12_reasonableusedoctrine_v010611.pdf [https://perma.cc/TC6A-ZBF6].

according to the order in which they first put the water to beneficial use.[31] But prior appropriation was never intended to do anything more than maximize water use and create certainty of rights among water users.[32] The system makes little practical sense in an age of changing natural conditions and rapidly disappearing water resources and is due for an update.[33]

B. Varying Definitions of Public Interest Use

Although the existing system tends to favor the earliest private water users and those who own riparian land, the state has claimed water as its property from the earliest iterations of the doctrine of prior appropriation. Public interest considerations limit the private use of water.[34] The exact definition of "public interest" has evolved over time and may have multiple definitions simultaneously.[35] For example, "public interest" may be defined in a purely utilitarian sense as anything that maximizes overall wealth in society.[36] Although this approach is adjustable where calculations of costs and benefits change, its emphasis on the value of resources to humans sometimes fails to capture the nuances involved in values not easily captured in monetary terms, such as the intrinsic value of natural resources.[37]

Another approach to defining the public interest is through a majoritarian view, which seeks to aggregate individual preferences of members of the public and "filter those views through a political or democratic process."[38] This approach allows for slightly more nuance than a pure utilitarian approach, where, for example, the public or its elected officials may believe natural resources should be preserved for

[31] *See* Michael Toll, *Reimagining Western Water Law: Time-Limited Water Right Permits Based on a Comprehensive Beneficial Use Doctrine*, 82 U. COLO. L. REV., 595, 616 (2011).

[32] *Id.*

[33] *See id.*

[34] Mark Squillace, *Restoring the Public Interest in Western Water Law*, 2020 UTAH L. REV. 627, 628.

[35] *See id.* at 632-42.

[36] *Id.* at 633.

[37] *Id.* at 634.

[38] *Id.* at 635.

recreational and aesthetic purposes.[39] This approach, however, leads to instability as public officials are voted out, and in some cases can result in non-majority views systemically prevailing over popular ones due to the influence of smaller, more powerful factions in the political process.[40] Additionally, this approach tends to favor the interests of present generations at the expense of future ones, which is particularly troubling when it comes to natural resource allocation.[41]

C. Reasonable Use Under Riparian Systems

New needs have always generated new doctrines, which in turn generate new property rights.[42] At common law, riparian rights are inherently adjustable.[43] This is clearly evidenced by the vastly different approaches to water rights between states today.[44]

The most obvious example of this is seen by examining the differences between systems of water rights in eastern and western states.[45] As discussed, under systems of riparian rights, the owner of the land adjacent to the body of water has the right to use that water.[46] However, this system proved to be impractical in the western climate due to water scarcity and concerns about overexploitation of common resources.[47] When a massive influx of miners suddenly populated California due to the discovery of gold, the settlers used the riparian system they were familiar with, which is still what is used in the eastern United States today.[48] Under that system, the water went with the land, but miners were unable to obtain title to the land, and some states, such as Colorado,

[39] *See id.* at 635-36.

[40] *See id.* at 636-37.

[41] *Id.* at 637.

[42] Joseph L. Sax, *The Constitution, Property Rights and the Future of Water Law*, 61 U. COLO. L. REV. 257, 269 (1990).

[43] *Id.* at 267.

[44] *See* Dellapena, *supra* note 22, at 53.

[45] *See id.* at 76.

[46] *Id.* at 55.

[47] *See generally id.* at 77-81 (detailing the phasing out of riparian rights in western settlements).

[48] *Id.* at 77-78.

quickly phased out this system entirely.[49] Miners developed a system where they simply took whatever water they needed, which eventually evolved into the system of appropriative rights.[50] In other parts of the country, when demand for water began to overtake supply, traditional riparian systems have evolved into systems of regulated riparianism.[51] Under regulated riparianism, water is allocated through a collective decision-making process, often by time-limited licenses issued by the state based on the reasonableness of the proposed use.[52] These models are better suited for the modern era where the conception of what is "reasonable" is more fluid.[53]

Today, states use a wide range of water rights systems which tend to combine historic systems of water rights with more modern ones.[54] Some states, such as Oregon and Kansas, recognized both systems for a time before eventually phasing out riparian rights in favor of a permitting approach.[55] Other states have a purer appropriate rights approach. And other states, including Texas, Oklahoma, and California, continue to recognize both systems.[56]

[49] *Id.* at 78, 81.

[50] *See generally id.* at 77-81 (discussing the evolution of appropriative rights in the West).

[51] *Id.* at 54.

[52] *See id.* at 54-55.

[53] *See id.* at 87-88.

[54] *See* Craig Anthony Arnold, *Environmental Law, Episode IV: A New Hope? Can Environmental Law Adapt for Resilient Communities and Ecosystems?*, 21 J. ENV'T & SUSTAINABILITY L. 1, 15 (2015) ("The environmental protection and management of water is highly fragmented across a dozen different legal regimes or systems: surface water rights, groundwater rights, point source pollution controls, urban nopoint source pollution and runoff controls, rural and agricultural nonpoint source pollution controls, wetlands protection, land use planning and regulation, protection of endangered species and their habitats, navigation and recreation management, water development projects, flood management, and energy law and policy.").

[55] Joseph W. Dellapenna, *Dual Systems*, *in* 1 WATERS & WATER RTS., § 8.02(c) (Robert E. Beck & Amy K. Kelley eds., 3d ed. 2010).

[56] *Id.* § 8.02(a.01).

D. Restrictions on Water Use in California

The California Constitution requires that all water use be reasonable,[57] and California courts have held that the definition of what is considered "reasonable" is dynamic.[58] What constitutes reasonable water use is dependent upon the totality of the circumstances presented in a given case, and varies based on state-wide considerations.[59] For example, a use may be reasonable in some months or years where more water is available, but the same use may be considered unreasonable in drier years if it would interfere with minimum flow requirements.[60] Conceptions of what is reasonable can also change over the longer term, such as when particular uses no longer make practical sense or social values shift to embrace new uses.[61] In general, the determination that methods of use have become unreasonable is a policy judgment requiring a balancing of the competing public interests.[62]

In *National Audubon Society v. Superior Court*,[63] commonly called the Mono Lake case, the plaintiffs sought to enjoin the city of Los Angeles from diverting water from Mono Lake, arguing the diversions violated the public trust doctrine and the California Constitution's protection of navigable waterways.[64] The public trust doctrine refers to the state serving as a trustee of natural resources such as water.[65] In holding resources in public trust for the people, the state has the obligation to limit the ways in which trust resources can be used.[66] This concept

[57] CAL. CONST. art. X, § 2.

[58] Robin Kundis Craig, *Water Law and Climate Change in the United States: A Review of the Scholarship* (Univ. Utah Coll. of L. Research Paper No. 357, 2020).

[59] Env't Def. Fund, Inc. v. East Bay Mun. Util. Dist., 605 P.2d 1, 6 (Cal. 1980).

[60] *See id.* at 3-4, 6.

[61] *See id.* at 6.

[62] United States v. State Water Res. Control Bd., 227 Cal. Rptr. 161, 188 (Ct. App. 1986) (holding that the quality of water resources and transport of water supplies southward were valid policy considerations to determine whether a use was reasonable).

[63] Nat'l Audubon Soc'y v. Superior Ct., 658 P.2d 709 (Cal. 1983) (holding that the public trust doctrine offers an independent basis for challenging water diversions).

[64] Erin Ryan, *The Public Trust Doctrine, Private Water Allocation, and Mono Lake: The Historic Saga of* National Audubon Society v. Superior Court, 45 ENV'T L. 561, 603 (2015).

[65] Gabrielle Kavounas, Comment, *California's Curse: Perpetual Drought and Persistent Land Development*, 53 SAN DIEGO L. REV. 1055, 1087 (2016).

[66] *Id.*

dovetails with the doctrines of reasonable and beneficial use embedded in the California Constitution because it gives the state oversight power for water use.[67]

The California Supreme Court held in its seminal Mono Lake decision that the public trust doctrine offers an independent basis for challenging water diversions.[68] Even in cases where the state has approved an appropriation, "the public trust imposes a duty of continuing supervision over the taking and use of appropriated water," so the state has an obligation to reconsider allocations that negatively impact the public trust.[69] This case is an example of California water rights evolving to give more weight to public interest concerns, and the First District of the California Court of Appeal subsequently held that the Mono Lake decision "firmly establishes" that the State Water Resources Control Board has the right to control water use permits and reevaluate the permits as necessary to protect wildlife and their habitats.[70] Because water is a public resource, the public trust doctrine would provide the state with a strong defense against takings claims if it were to reevaluate private water rights and implement a new system of water use permits.[71]

California also includes a public interest review in its water permit application process,[72] and state prioritization of public interest concerns has been repeatedly upheld by California courts.[73] Even the current system of water rights in California has some minimum stream flow requirements, meaning no diversions are allowed if the water falls below a certain level, to ensure the viability of fish and wildlife resources, although enforcement of this requirement is often lacking.[74] But, as a

[67] *Id.*; *see* CAL. CONST. art. X, § 2.

[68] *See Nat'l Audubon Soc'y*, 658 P.2d at 730.

[69] *Id.* at 728.

[70] United States v. State Water Res. Control Bd., 227 Cal. Rptr. 161, 201 (Ct. App. 1986).

[71] Kavounas, *supra* note 65, at 1092. *But see* Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 323-24 (Fed. Cl. 2001) (holding that the federal government may not act pursuant to the public trust doctrine).

[72] CAL. WATER CODE § 1253 (2022).

[73] *See, e.g.*, People v. Shirokow, 605 P.2d 859, 866 (Cal. 1980) (holding that "[i]f the board determines a particular use is not in furtherance of the greatest public benefit, on balance the public interest must prevail").

[74] Squillace, *supra* note 34, at 648.

matter of law, private water rights are subservient to minimum public values.[75] Enforcement and competing interests aside, there is a legal foundation in the state of California for a modern reallocation of water rights.

II. AN OVERHAUL OF CALIFORNIA'S CURRENT WATER RIGHTS SYSTEM IS NECESSARY AND SUPPORTED BY LAW

A. Reasonable Use and Actual Necessity

As environmental conditions shift due to climate change,[76] private water rights that were once reasonable may become unreasonable. Quickly changing environmental conditions call for an immediate redefining of what is "reasonable," which would allow for outdated systems of water rights to be phased out. As droughts become more frequent and severe,[77] rising sea levels cause saltwater to intrude in groundwater supplies.[78] Changes in human settlement patterns put

[75] *Id.*

[76] *See, e.g.*, *The Effects of Climate Change*, NASA: GLOB. CLIMATE CHANGE, https://climate.nasa.gov/effects/ (last visited Jan. 3, 2022) [https://perma.cc/F2CL-HVH3] ("The effects of human-caused global warming are happening now, are irreversible on the timescale of people alive today, and will worsen in the decades to come.").

[77] *See, e.g.*, Sofie Bates, *Drought Makes Its Home on the Range*, NASA: GLOB. CLIMATE CHANGE (Sept. 27, 2021), https://climate.nasa.gov/news/3117/drought-makes-its-home-on-the-range/ [https://perma.cc/8V5Y-VK3V] ("Drought — a year with a below-average water supply — is a natural part of the climate cycle, but as Earth's atmosphere continues to warm due to climate change, droughts are becoming more frequent, severe, and pervasive. The past 20 years have been some of the driest conditions in the American west on record.").

[78] *See generally* Swati Hedge, *Salt Intrusion: A Threat to Source Water Quality*, WATER CTR: UNIV. OF PA. (Feb. 14, 2019), https://watercenter.sas.upenn.edu/salt-intrusion-a-threat-to-source-water-quality/ [https://perma.cc/AH52-LQYY] ("[T]he movement of saline water into freshwater aquifers resulting in contamination of drinking water resources . . . . can occur during the events of reduced streamflow caused by severe drought or, potentially, due to climate change-related sea level rise.").

stress on water supplies,[79] creating a need for a more dynamic system of water rights.[80]

In *Miller v. Schoene*,[81] the United States Supreme Court considered whether the government may act to prevent harm in circumstances where the failure to act would cause more harm.[82] The *Miller* Court held that the government was justified in destroying a plaintiff's diseased apple trees without just compensation to prevent the disease from spreading to other trees.[83] This illustrates an exception to takings liability recognized in cases of clear public necessity, such as the government's need to minimize damage from a disease or natural disaster.[84] The public necessity may be viewed as justified in cases of true necessity, where "the government's utility maximization problem is so clear, and the stakes are so high, that it would be public malpractice not to take private property."[85] This justification may be applied to private water rights in times of severe and unprecedented drought, where the state is forced to act quickly to avoid catastrophic harm to communities and habitats.[86] This is bolstered by the fact that water resources have always had a pubic dimension, which limits the ability of private users to exploit water resources for their own use.[87]

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[79] *See, e.g.*, Somini Sengupta & Weiyi Cai, *A Quarter of Humanity Faces Looming Water Crisis*, N.Y. TIMES (Aug. 6, 2019), https://www.nytimes.com/interactive/2019/08/06/climate/world-water-stress.html [https://perma.cc/J65X-3SD2] ("[W]ater supply [of Los Angeles] isn't keeping pace with its galloping demand and its penchant for private backyard swimming pools doesn't help.").

[80] *See* Arnold, *supra* note 54, at 18.

[81] 276 U.S. 272 (1928). *Miller* was a case challenging the Cedar Rust Act, which required property owners to remove red cedar trees infected with cedar rust located within two miles of an apple orchard to prevent destruction of apple trees by the spread of cedar rust. *Id.* at 277. Since cedar trees and apple orchards could not coexist near each other due to the spread of cedar rust, the state had to choose which to save, and chose to save the apple orchards based on their greater economic value. *Id.* at 279.

[82] *See id.*

[83] *Id.* at 279.

[84] Jeremy Patashnik, *The Trolley Problem of Climate Change: Should Governments Face Takings Liability if Adaptive Strategies Cause Property Damage*, 119 COLUM. L. REV. 1273, 1282-83 (2019).

[85] *Id.* at 1296.

[86] *See id.* at 1300.

[87] Dave Owen, *Taking Groundwater*, 91 WASH. U. L. REV. 253, 305 (2013).

In *Miller*, the Court also rejected the notion that tensions between public and private interests are somehow akin to a conflict between two private interests.[88] The Court found a state does not violate due process principles when forced to make a decision to save one of two types of property and acts to save the one that, in the Legislature's judgment, is more valuable to the public.[89] Based on this idea, the state could overhaul some private water rights that are clearly infringing on the public interest while escaping takings liability because though the government action may cause private harm, inaction could cause greater harm to the public.[90]

It is unclear whether the precedent set in *Miller* would hold up to modern scrutiny, as it relies on a deference to the state's police power, which the Court has moved away from.[91] But recent case law suggests that *Miller* may apply to emergencies in which the harm is truly unavoidable.[92] In 2019, the Court of Federal Claims declined to extend the *Miller* precedent in a case involving flooding of private properties in Houston caused by Tropical Storm Harvey, because "the flooding at issue [] was not an *unavoidable* harm."[93] Rather, the flooding was due to the government's "calculated decision to allow for flooding these lands years before Harvey, when it designed, modified, and maintained the dams in such a way that would flood private properties during severe storms."[94] Thus, the court reasoned, the government "cannot now claim that this harm was unavoidable when it planned for years to impound floodwaters onto plaintiff's properties."[95]

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[88] *Miller*, 276 U.S. at 279 (1928).

[89] *Id.* at 277, 280.

[90] J. Peter Byrne, *Property in the Anthropocene*, 6 BRIGHAM-KANNER PROP. RTS. CONF. J. 259, 272 n.57 (2017).

[91] *Id.* at 273 n.58 (quoting Lucas v. S C. Coastal Council, 505 U.S. 1003, 1022-23 (1992) (explaining that the "harmful or noxious uses" applied by the lower court in Lucas was an "early attempt to describe in theoretical terms why government may, consistent with the Takings Clause, affect property values by regulation without incurring an obligation to compensate — a reality we nowadays acknowledge explicitly with respect to the full scope of the State's police power")).

[92] *See In re* Upstream Addicks & Barker (Tex.) Flood-Control Reservoirs, 146 Fed. Cl. 219, 263-64 (Fed Cl. 2019).

[93] *Id.* at 263.

[94] *Id.* at 263-64.

[95] *Id.* at 264.

Other recent cases, such as *State v. Wilson*[96] decided by the Supreme Court of New Mexico in 2021, support a reasonable exercise of police power where the state is forced to make a choice that is unavoidable.[97] The *Wilson* court was asked to consider whether the state's public health orders issued during the COVID-19 pandemic could support claims of small businesses and business owners for just compensation.[98] It held that the public health orders were a reasonable exercise of the state's police power to protect public health, and that the state had the authority to take more drastic measures to address the crisis at hand.[99] "Given the contagious nature of the disease and considering current information, including the promise of vaccines and the concerns of variants, the [public health orders'] efforts to reduce the spread of the disease continue to be reasonably related to the public health emergency."[100] The restrictions imposed were reasonably necessary for reducing the spread of the virus.[101] In the court's view, "[o]ccupancy limits and closure of certain categories of businesses, while certainly harsh in their economic effects, are directly tied to the reasonable purpose of limiting the public's exposure to the potentially life-threatening and communicable disease, and thus can be deemed 'reasonably necessary.'"[102] The public health orders were a reasonable exercise of police power to protect the public health.[103] This decision provides a framework for how *Miller* may hold up in the modern era in times of true crisis, including severe water shortages.[104]

Another issue that may arise in the application of *Miller* in this context is the requirement of "actual necessity,"[105] which dictates that the government may only escape takings liability on the basis of the public necessity doctrine "when there is an imminent danger and an actual

[96] 489 P.3d 925, 934 (N.M. 2021).

[97] *Id.*

[98] *Id.* at 930-31.

[99] *Id.* at 938.

[100] *Id.*

[101] *Id.*

[102] *Id.*

[103] *Id.*

[104] *See id.*

[105] Patashnik, *supra* note 84, at 1287.

emergency."[106] The implication is that the doctrine connotes an unforeseen, immediate need, such as a sudden onset of a rapidly spreading disease, rather than events that are anticipated and unfold over time.[107] And if the government is acting well in advance of a future climate event that has yet to happen, even if the harm was certain, courts may be reluctant to find the existence of a true emergency due to a lack of imminency.[108]

However, framing climate outcomes in this way would incentivize the state to make absurd policy decisions.[109] In the context of water permits, the state would essentially be required to wait until water resources had all but run out before taking action,[110] which would cut against the principles of reasonable use embedded in the California Constitution.[111] A better approach is to allow for the necessity defense to be applied in cases where there is a certain, future catastrophic harm, and the government action is necessary to either prevent or significantly mitigate that harm.[112] Thus, as long as the government could prove that harm was certain, it could still demonstrate actual necessity acting well in advance of a dangerous climate event.[113] The state should also label any restructuring of private water rights systems as emergency actions to strengthen this position.[114] And political considerations aside, there is clearly a scientific basis from which to conclude the harm is certain as the effects of climate change are readily observable, including in California

[106] TrinCo Inv. Co. v. United States, 722 F.3d 1375, 1378 (Fed. Cir. 2013).

[107] Sprankling, *supra* note 21, at 771.

[108] Patashnik, *supra* note 84, at 1300-01.

[109] *See id.*

[110] *See id.*

[111] *See* CAL. CONST. art. 10, § 2.; Patashnik, *supra* 84, at 1300-01 ("[I]f courts recognize that climate change often necessitates large-scale public policy responses, courts would be creating perverse incentives if they only allowed the public necessity defense in truly dire cases. This would motivate the government to wait until it can bolster its actual necessity claim before it acts, resulting in the absurd situation in which the government can avoid liability by waiting to act until the last possible moment.").

[112] Patashnik, *supra* note 84, at 1300-01; *see* Sprankling, *supra* note 21, at 771.

[113] Patashnik, *supra* note 84, at 1301.

[114] *See id.*

and with respect to the water supply.[115] Although some effects of climate change may be avoided through interim action, even if all emissions of heat-trapping gasses were to cease today, temperatures would continue to rise for several decades before eventually stabilizing.[116] And in the context of the water crisis, the already dire situation is all but certain to get worse before it gets better.[117] Even if there is more precipitation in future years than in 2021 and other dry years — and there is no indication that this will be the case — it would take significant precipitation over multiple years to replenish the water supply following this multi-year drought, and the state should prepare as if there are additional dry years coming.[118]

B. Defining the Public Interest

To effectively act in the public interest, the state needs to define what is in the public interest.[119] With a clear and meaningful definition, the state can apply it uniformly to every request involving water resource use.[120]

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[115] *See Is It Too Late to Prevent Climate Change?*, NASA: GLOBAL CLIMATE CHANGE, https://climate.nasa.gov/faq/16/is-it-too-late-to-prevent-climate-change/ (last visited Jan. 3, 2022) [https://perma.cc/Y2V9-CK8T].

[116] David Herring & Rebecca Lindsey, *Can We Slow or Even Reverse Global Warming?*, CLIMATE.GOV (Oct. 29, 2020), https://www.climate.gov/news-features/climate-qa/can-we-slow-or-even-reverse-global-warming [https://perma.cc/2Y49-PFZA].

[117] *See, e.g.*, ANDREW SCHWARZ, PATRICK RAY & WYATT ARNOLD, DECISION SCALING EVALUATION OF CLIMATE CHANGE DRIVEN HYDROLOGICAL RISK TO THE STATE WATER PROJECT, 13-18 (2019), https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-III-Decision-Scaling-Vulnerability-Assessment.pdf [https://perma.cc/MN3S-CP56] (detailing the impact of rising temperatures on California's water resources); *see also id.*

[118] Jay Lund, *How Dry Will 2022 Be?*, CAL. WATERBLOG (Nov. 28, 2021), https://californiawaterblog.com/2021/11/28/how-dry-will-2022-be/ [https://perma.cc/5K53-3K5W].

[119] *See* Squillace, *supra* note 34, at 678. For example, the Alaska Water Use Act identifies eight factors for determining whether the issuing of a water permit is in the public interest. *See* ALASKA STAT. § 46.15.080 (2022). Naming specific criteria "can help to ensure a systematic administrative decision-making process . . . that will provide an administrative record upon which interested parties can obtain meaningful judicial review." Squillace, *supra* note 34, at 677.

[120] Squillace, *supra* note 34, at 677.

In the context of water use, the best definition of what is within the public interest is likely something that reflects communal values and is not overly influenced by private interests.[121] This approach considers and allows for private interests in public resources but does not prioritize them over shared public values. This includes ensuring there are enough water resources to provide for essential human needs but also accounts for environmental and aesthetic concerns and the preservation of water resources for future generations.[122]

When viewed through this lens, review could become more streamlined, with fewer varying definitions of what it truly means to be in the public interest.[123] Parties would be able to argue their case with more precise expectations of what factors would be considered and how these factors weigh against one another.[124] This would also provide greater certainty that considerations of the public interest would not become conflated with that of private economic values.[125] Some assessments may have additional complexities or outcomes that are difficult to foresee, but this can be mitigated if the approval provides for an adaptive management program for the water resource, requiring the appropriator to work with the state to make any necessary adjustments to increase or decrease minimum flows at certain times of year based on data that is gathered once the use commences.[126]

California is currently one of only two states that routinely addresses public interest concerns when considering water rights applications.[127] Its system provides for instream flow protection of watercourses

[121] *Id.* at 644.

[122] *Id.* at 638, 640-41.

[123] *Id.* at 678.

[124] *See* Susanne Hoffman-Dooley, *Determining What Is in the Public Welfare in Water Appropriations and Transfers: The Intel Example*, 36 NAT. RES. J. 103, 114 (1996).

[125] *See* Squillace, *supra* note 34, at 635 (criticizing approaches that "minimize and sometimes even disregard current and future public values that are commonly shared, in favor of private and present economic values," as "a distorted view of the public interest").

[126] *Id.* at 678-79.

[127] CAL. WATER CODE § 1253 (2022) (providing that the State Water Resources Control Board "shall allow the appropriation for beneficial purposes of unappropriated water under such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest the water sought to be appropriated"). Other states also have laws mandating this but routinely fail to do so. Squillace, *supra* note 34, at 658.

identified by the director of the California Department of Fish and Game, and decisions to allocate water must be made with the minimum flow levels of these bodies in mind.[128] Unlike some other western states, California does not explicitly require protection of scenic, aesthetic, environmental, and navigational values beyond what is inherent in enforcing minimum stream flow requirements, although public trust in California does this, as do the public use rights in the California Constitution.[129] California does require consideration of beneficial uses of water concerned with, but not limited to, "use for domestic, irrigation, municipal, industrial, preservation and enhancement of dish and wildlife, recreational, mining and power purposes."[130] Further legislative guidance is needed regarding what exactly the "public interest" entails on both a local and statewide level.[131] Any potential solution should consider both immediate, direct effects, and long term, indirect effects.[132] It should also specifically outline the types of secondary effects to be considered, including effects on habitat and aquatic life, recreation and aesthetic beauty, transportation, water quality, and availability of water for alternative uses.[133]

[128] CAL. PUB. RES. CODE §§ 10001–02 (2022) ("The Director of Fish and Game shall prepare proposed streamflow requirements . . . .").

[129] Squillace, *supra* note 34, at 664; *see* CAL. CONST. art. 10, § 2.

[130] CAL. WATER CODE § 1257 (2022).

[131] *See* Amber L. Weeks, *Defining the Public Interest: Administrative Narrowing and Broadening of the Public Interest in Response to the Statutory Silence of Water Codes*, 50 NAT. RES. J. 255, 281 (2010). In 2003, the Idaho state Legislature narrowed the definition of "public interest" to exclude secondary effects of water usage. *Id.* at 276. However, many of its regulations still require consideration of secondary effects, such as impact on the local economy, effects on fish and wildlife, and aesthetic values. *Id.* at 277-78. Inconsistent outcomes such as this one could be avoided by placing parameters around which secondary effects are to be considered and under what circumstances. *See id.* at 278.

[132] *See id.* at 277.

[133] *See id.*

C. Foreseeability Principles Favor the State's Ability to Overhaul Old Systems

1. Takings Clause Considerations

When it comes to evaluating how private water rights can be adjusted, foreseeability is both a guiding principle and a limiting factor.[134] This is because the existence of a taking is determined in part by the reasonable expectations of the owner.[135] In *Penn Central Transportation Company v. City of New York*,[136] the United States Supreme Court identified factors for determining whether a taking occurred.[137] The nature of the government action is one factor, and a physical invasion is more likely to be a taking than a regulation affecting the use of property.[138] The economic impact on the claimant is also relevant, and the Court specifically urged consideration of "the extent to which the regulation has interfered with the property owner's distinct investment-backed expectations," suggesting the foreseeability of a regulation is important to determining whether a taking has occurred.[139]

In *Lucas v. South Carolina Coastal Council*,[140] the Court held that a regulation preventing any beneficial use of land — as the regulation there did — would be considered a taking, unless justified by another preexisting principle of property or nuisance law.[141] But the opinion, initially viewed by many as aggressive and far reaching,[142] carves out an

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[134] *Cf.* Sprankling, *supra* note 21, at 767-69, 771 ("[T]he existence of a taking is determined — to some extent — by the reasonable expectations of property owners.").

[135] *Id.*

[136] 438 U.S. 104 (1978).

[137] The opinion is ambiguous as to whether this is an exhaustive list of all possible factors.

[138] *Penn Cent.*, 438 U.S. at 124.

[139] *See id.*

[140] 505 U.S. 1003 (1992).

[141] *Id.* at 1029. The regulation challenged in *Lucas* was South Carolina's Beachfront Management Act, which barred the petitioner from building any permanent, habitable structures on two beachfront residential lots. *Id.* at 1008-09.

[142] *See, e.g.*, J. Peter Byrne, *The Cathedral Engulfed: Sea-Level Rise, Property Rights, and Time*, 73 LA. L. REV. 69, 99 (2012) ("On its face, *Lucas* presents a formidable barrier to land-use regulations implementing a retreat strategy because it mandates compensation for total prohibitions on development even if justified by the need to protect the

exception when the economic use of the property violates any "restrictions that background principles of the State's law of property and nuisance already place upon land ownership."[143] It specifically notes that a property owner "necessarily expects the uses of his property to be restricted, from time to time, by various measures newly enacted by the State in legitimate exercise of its police powers."[144] The Court's conservative majority tends to "pursue an ideal of essential, or natural, property rights unchangeable without compensation," even in the face of "dynamic physical transformations promised" by climate change.[145] But nevertheless, this holding could suggest that even if a new regulation eliminates all economic use, if it is grounded in existing principles of property law — which public interest regulations are — it would not be a taking.[146]

2. Due to the Current Climate Crisis, Limitations on Water Rights Are Foreseeable

Case law indicates that as climate change continues to progress and the government is forced to take action to protect the population, property owners should be able to reasonably anticipate that their rights may be limited by future regulations.[147] Climate change is currently acutely felt by people all over the world and particularly in California where drought conditions and wildfires have become increasingly problematic, as private water rights have become increasingly "injurious

shoreline ecology."); Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding* Lucas v. South Carolina Coastal Council, 45 STAN. L. REV. 1433, 1437 (1993).

[143] *Lucas*, 505 U.S. at 1029.

[144] *Id.* at 1027.

[145] Byrne, *supra* note 142.

[146] Sprankling, *supra* note 21, at 756 ("Scalia's approach implicitly acknowledged that new legislation grounded in traditional principles of property law would not be a taking, even if it eliminated all economic use.").

[147] *See, e.g.*, *Lucas*, 505 U.S. at 1016 n.7 (observing that the test for defining the parcel subject to the Takings Clause stemmed from "how the owner's reasonable expectations have been shaped by the State's law of property"); Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1922) (requiring that courts consider "the extent to which the regulation has interfered with distinct investment-backed expectations"); *see also* Sprankling, *supra* note 21, at 770.

to the community."[148] After a certain point, it will no longer be reasonable for property owners to claim there was no foreseeable regulatory encroachment on their property rights due to climate change.[149] Water rights in California have always been subject to regulation and changing standards of reasonableness, and the state has an "affirmative duty" to protect public trust values in water.[150] Thus, water rights holders and property owners more generally should be able to reasonably anticipate curtailments in their water use rights.[151]

It would not be the first time that private water interests were curtailed based on nuisance principles. In the late nineteenth century, California courts found obstruction or interference with navigable streams by a private individual or entity is a public nuisance and based on that enjoined a ditch and mining corporation from dumping debris from the hydraulic mining process into the American River, a practice which is necessary for such mining to take place within reasonable economic constraints.[152]

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[148] *See* Mugler v. Kansas, 123 U.S. 623, 660, 665 (1887) (finding that "society has the power to protect itself, by legislation" against private ventures which negatively impact the public).

[149] *See* Sprankling, *supra* note 21, at 770. For example, it is broadly understood that rising sea levels pose a threat to coastal properties. *Id.* Many parts of the United States are already affected. *See, e.g.*, Mario Alejandro Ariza, *As Miami Keeps Building, Rising Seas Deepen Its Social Divide*, YALE ENV'T 360 (Sept. 29, 2020), https://e360.yale.edu/features/as-miami-keeps-building-rising-seas-deepen-its-social-divide [https://perma.cc/2AZ6-PCDF] (discussing current and future impacts of rising sea levels in Miami). Thus, there will likely come a point when owners of beachfront properties will not be able to convincingly claim a reasonable expectation of being able to build on the land. *Id.* And there may also come a point where water rights holders will could not have a reasonable expectation of avoiding future legal controls. *See id.*

[150] Nat'l Audubon Soc'y v. Superior Ct., 658 P.2d 709, 728 (Cal. 1983).

[151] *See id.*

[152] *See generally* John D. Leshy, *A Conversation About Takings and Water Rights*, 83 TEX. L. REV. 1985, 2001 (2005) ("[O]ver a century ago, farmers asked the courts in California to use the nuisance principle to effectively shut down an entire major industry [that] wreaked havoc on the environment . . . . The farmers and their allies won, and the industry was shut down, without compensating the mineral owners." (citing People v. Gold Run Ditch & Mining Co., 4 P. 1152, 1159 (Cal. 1884)).

3. The Climate Crisis Calls for Major Restructuring of Old Systems of Water Rights

Current water rights — and our system of property law more generally — evolved during a period when the physical conditions reflecting land were relatively stable.[153] Accordingly, the law surrounding water rights was developed specifically to promote stability.[154] The system we have today is not built to accommodate major external changes in the environment.[155] But environmental shifts show the need for a more lenient and flexible constitutional approach, and the property rules not only can but must evolve to remain in step with social and ecological change.[156] As evidenced by the ongoing disputes surrounding shortages, new systems are necessary to be able to effectively manage current and future water shortages due to climate change, but in a way that does not violate the Takings Clause and is maximally fair to private water rights holders.[157]

To balance these competing concerns, the right to exclude and the right to use may be narrowed in a way that is grounded in existing principles.[158] Water is a communal resource and has public value.[159] It is the job of the state to effectively manage water resources in a way that protects the public interest.[160] These efforts will necessarily clash with private property rights, but it is necessary to place limits on these rights when it comes to something as vital as water, to preserve the functioning of society.[161]

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[153] *See* Sprankling, *supra* note 21.

[154] *See id.* at 738-39.

[155] *Id.*

[156] *See* Byrne, *supra* note 142.

[157] Sprankling, *supra* note 21, at 739.

[158] *See* Stop the Beach Renourishment, Inc. v. Fla. Dep't of Env't Prot., 560 U.S. 702, 726 (2010); Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1029 (1992).

[159] Squillace, *supra* note 34, at 628, 632.

[160] *See id.* at 631-32.

[161] *See id.* at 632.

4. An Opportunity to Create a More Equitable System

Existing systems of water rights are based on age of use and land ownership,[162] which necessarily favors the white population who created the current system of property rights used in the United States.[163] It also favors people who have the capital necessary to develop water use and divert water.[164] This, again, consisted of mostly white settlers.[165] A new system that is instead based on reasonable use and time limits would allow for new players to enter the market and would better reflect modern notions of fairness and justice, since the focus would be on reasonableness in terms of public values, rather than simply time of use. This would better protect the human right to water for all.[166]

Native American tribes are also are important water rights holders.[167] Water is a particularly critical resource on Native American reservations, in large part because of the obvious implications for the physical, cultural, and economic wellbeing of residents, but also stemming from the sacred nature of water as a resource.[168] In fact, the absence of clean and reliable water resources has led to higher rates of unemployment and

[162] *See, e.g.*, Anthony Scott & Georgina Coustalin, *The Evolution of Water Rights*, 35 NAT. RES. J. 821, 827 (1995) (discussing the use of "prescription" (actual use, stemming from land ownership) and "seniority" (chronological priority to rights based on use) as the two mechanisms to enforce water rights).

[163] *See* Paul Formisano, "*First in Time, First in Right*": *Indigenous Self-Determination in the Colorado River Basin*, 14 REV. INT'L AM. STUDS. 153, 155 (2021) (discussing how the "first in time, first in right" principle tends to benefit non-native water users while tribal users, despite their "literal embodiment as the 'first in time, first in right' users throughout the West," have been barred from exerting water sovereignty); Tom Housel, Comment, *When the Rivers Run Dry: Adapting Prior Appropriation Systems to Protect Marginalized Communities in Times of Drought*, 36 J. ENV'T L. & LITIG. 237, 247 (2021). This stems, in part, from early concepts of "beneficial use" being strictly limited to specific economic uses, while completely discounting tribes' cultural and spiritual relationship to water, and their "sacred duty to protect and maintain this essential resource." Formisano, *supra*, at 160, 163.

[164] *See* Formisano, *supra* note 164, at 154-55.

[165] *See id.*

[166] *See* G.A. Res. 64/292, at 2 (July 28, 2010) (establishing the human right to water and sanitation).

[167] *See* U.S. COMM'N ON C.R., BROKEN PROMISES: CONTINUING FEDERAL FUNDING SHORTFALL FOR NATIVE AMERICANS 180 (2018), https://www.usccr.gov/files/pubs/2018/12-20-Broken-Promises.pdf [https://perma.cc/C6RG-2X8G].

[168] *Id.* at 181.

poverty for Native Americans living on reservations than to non-Native communities experiencing water accessibility issues.[169] Given the unique value of water to Native Americans and the extreme shortages that already exist today,[170] courts and legislatures should take special care when addressing native water rights and should carve out exceptions where necessary.[171]

The Hawaii Supreme Court provides an example in its reframing of the public trust doctrine to ease concerns over Native Hawaiian interests, broadening public and legal understanding regarding native water rights issues and taking a step towards "explicitly integrating indigenous peoples' environmental interests" into policy decisions.[172] In its decision, the court, looking at history and traditional Hawaiian culture, identified the original intent of the public trust doctrine as "preserv[ation] of the rights of native tenants during the transition to a western system of private property," and thus vowed to "continue to uphold the exercise of Native Hawaiian rights as a public trust purpose."[173] The court kept the existing doctrine intact, while also expressly integrating native issues into it.[174]

Consideration of native issues only reinforces the need for an updated and more equitable system of water rights.[175] A new system based on reasonable use, in addition to addressing general water shortage concerns, would also provide an opportunity to restructure systems that exclude Native Americans and other marginalized groups.[176]

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[169] *Id.* at 183.

[170] *See id.* at 180-83.

[171] *See* Eric K. Yamamoto & Jen-L W. Lyman, *Racializing Environmental Justice*, 92 U. COLO. L. REV. 1393, 1394 (2021).

[172] *Id.* at 1437-39.

[173] *In re* Water Use Permit Applications, 9 P.3d 409, 449 (Haw. 2000).

[174] *See* Yamamoto & Lyman, *supra* note 171, at 1438.

[175] *See id.* at 1437.

[176] *See* Gabrielle Canon, *'We're Dwindling Like the Salmon': The Indigenous Nations Fighting for Water Rights*, GUARDIAN (Aug. 26, 2022, 6:00 AM EDT), https://www.theguardian.com/us-news/2022/aug/26/california-indigenous-water-rights-bay-delta [https://perma.cc/G8B9-DNUE] (discussing native efforts to address a "hopelessly out of date" water quality control plan to prevent water being removed in a way that creates a "constellation of harm[,]" and that threatens "not just their water rights but their civil rights[,]" but also the "health of the rivers and the people who live near them").

III. A SYSTEM OF TIME-LIMITED WATER RIGHTS PERMITS

The *first in time, first in right* approach has troubling implications in the modern era.[177] For one, the appropriative right system favors the earliest users and makes transfers difficult.[178] This has inherent implications for marginalized groups that have previously been barred from the system of private water rights.[179] This approach also tends to support inefficient uses of water over the long term and makes it difficult for new users to get rights, even if those uses are more efficient and more valuable.[180] Term limits on water rights could address this problem.[181] This would allow for built-in, periodic review to determine continued beneficial use, and it could even promote marketability by enabling more streamlined transfers, for example.[182]

Such a system would consider public interest needs as defined in the previous section, as well as efficiency of uses, in creating a system of renewable and reviewable water permits.[183] As the system is now, permits are already required for private users to exercise water rights.[184] But under the new system, the permit would be for a specified period, subject to renewal upon expiration based on conditions agreed upon in advance.[185]

Systems of time-limited water use permits require users to obtain a permit from the state before withdrawing any water from a source within

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[177] *See, e.g.*, Lawrence Berger, *An Analysis of the Doctrine That "First in Time Is First in Right"*, 64 NEB. L. REV. 349, 371-73 (1985) (discussing issues with prior appropriation, including that it "encourag[es] the exploitation of a scarce resource").

[178] *See* George A. Gould, *Transfer of Water Rights*, 29 NAT. RES. J. 457, 460-62 (1989) (discussing legal and practical impediments to appropriative rights transfers); *see also* Andrew Ayres, Ellen Hanak, Brian Gray, Gokce Sencan, Ellen Bruno, Alvar Escriva-Bou & Greg Gartrell, *Improving California's Water Market*, PUB. POL'Y INST. OF CAL. (Sept. 2021), https://www.ppic.org/publication/improving-californias-water-market/ [https://perma.cc/PL43-BM5A] (outlining policy suggestions to improve water rights transferability).

[179] *See* Formisano, *supra* note 163, at 154.

[180] *See* Housel, *supra* note 163, at 250.

[181] *See* Toll, *supra* note 31, at 627.

[182] *See id.*

[183] *See id.*

[184] *Id.*

[185] *Id.*

that state.[186] The time limited permits are issued based on reasonable use — which, as discussed, is closely intertwined with public interest — so the state must decide whether the proposed use is reasonable in consideration of public policy and the effect of the proposed use on other sanctioned uses.[187]

When the permit expires, the holder may apply for renewal within six months, which will be considered again subject to reasonable use considerations.[188] Agency decisions on permit issuance and renewals are subject to judicial enforcement, providing for judicial review of agency decisions.[189] Built-in, periodic review of private water use for reasonableness allows the state to use the expiration of permits to make adjustments to the allocation of water resources based on changing environmental and social conditions.[190]

Such a system is already in use among many of the eastern states, under their regulated riparianism approach, and these states could provide a model for what implementation would look like in California.[191] Although the exact framework of regulated riparianism varies from state to state, the Regulated Riparian Model Water Code of the American Society of Civil Engineers (the "Model Code")[192] provides general themes of what such a system generally looks like.[193] For example, eastern states that have adopted systems of regulated riparianism have established permit durations for periods between one and twenty years, but the most common duration is ten years.[194] Georgia is the only state that issues permits of different lengths for agricultural and non-agricultural uses — agricultural permits are valid for twenty-five years,[195]

[186] *Id.* at 628.

[187] *Id.*

[188] *Id.* at 629.

[189] *Id.*

[190] *Id.*

[191] *Id.* at 628.

[192] REGULATED RIPARIAN MODEL WATER CODE (AM. SOC'Y OF CIV. ENG'RS 2018).

[193] Toll, *supra* note 31, at 628.

[194] REGULATED RIPARIAN MODEL WATER CODE § 7R-1-02 cmt. (AM. SOC'Y OF CIV. ENG'RS 2018).

[195] GA. CODE ANN. § 12-5-31(b)(3)(B) (2022).

and non-agricultural permits are issued for a duration between ten and fifty years.[196]

Were this system to be implemented in California, permits should expire in shorter time periods due to the direness of the climate crisis and current water shortages.[197] However, the permit length would need to be for a period long enough to fairly base a decision of whether the water has been put to reasonable use.[198] Although some have raised concerns that shorter durations will discourage investment in water-use facilities, this does not appear to have manifested in practice where such systems already exist.[199] But the permit length should not be for a time period so short that the state is being constantly inundated with permit renewal applications (and efforts should be made to stagger permit expiration dates so that workload remains steady and predictable for maximum efficiency).[200]

One way to have longer permit lengths while still retaining some flexibility is to have special provisions for water emergencies, an example of which can be found in the Model Code provisions for water shortages[201] and water emergencies.[202] Under the Model Code, a shortage occurs when "available water falls so far below normally occurring quantities that substantial conflict among water users or injury to water resources are expected to occur."[203] A water emergency occurs when the restrictions that would be imposed under a shortage "are insufficient to protect public health, safety, and welfare."[204]

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[196] *Id.* § 12-5-31(h).

[197] *See* Caleb Hall, *Water, Water, Nowhere: Adapting Water Rights for a Changing Climate*, 16 SUSTAINABLE DEV. L. & POL'Y 25, 31 (2017) ("Prior appropriation's shortsightedness is not surprising, considering that the doctrine was designed to do nothing more guarantee property rights with maximal water use. Such certainty is no longer possible in a changing climate."); Toll, *supra* note 31, at 630-31 (discussing potentially relevant considerations for determining permit lengths, including availability of resources and "comparative value of use on a basin-wide scale").

[198] *See* Toll, *supra* note 31, at 630-31.

[199] Dellapenna, *supra* note 22, at 88.

[200] *See* REGULATED RIPARIAN MODEL WATER CODE § 7R-1-02 cmt. (AM. SOC'Y OF CIV. ENG'RS 2018).

[201] *Id.* § 4R-2-02(l)-(2).

[202] *Id.*

[203] *Id.* § 2R-2-31.

[204] *Id.* § 2R-2-29.

When a shortage is declared, permit holders must receive notice and a contested hearing before their right to use is restricted.[205] In a declared emergency, orders restricting use take effect immediately upon service, although affected permit holders are still entitled to a hearing, which must commence within ten days of when the request is received.[206] These claims must then be resolved "as soon as reasonably possible."[207] This and other elements found in the Model Code would be effective means through which to manage longer permit periods (i.e., five or more years); this would allow for a longer economic life for necessary investments by creating specific standards to identify when curtailment of use is permissible and providing appropriate recourse for water rights holders, while still allowing for swift action in times of true crisis.[208]

Such a transition would be certain to cause upheaval among water rights holders.[209] But this system, far from turning private property into public property, would only be exercising the authority that has always been built into the system of water rights to protect the public interest.[210] As the California Supreme Court established in the *Mono Lake* case, public rights in water that appear to have been lost as a result of prior appropriations may be reclaimed when there is a duty to protect public values.[211] Since the state has a duty to protect the public trust, it can argue the current system of water rights appropriations, as well as new and existing riparian rights, puts the public trust in danger, and therefore limits must be placed on private water rights to protect the public trust.[212]

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[205] *Id.* § 7R-3-02(2).

[206] *Id.* § 7R-3-03(3), (5).

[207] *Id.* § 7R-3-03(5).

[208] *See* Robert E. Beck, *The Regulated Riparian Model Water Code*: *Blueprint for Twenty First Century Water Management*, 25 WM. & MARY ENV'T L. & POL'Y REV. 113, 154 (2000).

[209] *See generally* Leshy, *supra* note 152 (simulated conversation between a California farmer experiencing interruptions in water delivery and a government lawyer representing the project that delivers water to her).

[210] *Id.* at 2017.

[211] Squillace, *supra* note 34, at 648 (citing Nat'l Audubon Soc'y v. Superior Ct., 658 P.2d 709 (Cal. 1983)).

[212] Kavounas, *supra* note 65, at 1091; *see also* Christian Smit, *The Reasonable Use Doctrine, the Public Trust Doctrine, and Surface Water Rights in California: Exploring the Frontiers of Water Rights Reform in an Era of Scarcity and Instability*, 45 ENVIRONS: ENV'T L. & POL'Y J. 71, 87-89 (2021).

CONCLUSION

It is essential that courts and lawmakers take the climate crisis and California's drought seriously. Because the drought has no clear, permanent end in sight,[213] it is necessary to overhaul the current system of water rights that were developed in a time of different environmental conditions.[214] Introducing a system of regulated riparianism to California's system of water rights would give the state sufficient control to effectively manage the drought — carving out exceptions for Native American water rights holders — without completely freezing out private water users.[215]

[213] *See, e.g.*, Rachel Becker, *No, California's Drought Isn't Over. Here's Why.*, CALMATTERS, https://calmatters.org/environment/2022/01/california-drought-water/ (last updated Jan. 5, 2022) [https://perma.cc/EEE8-L9MM] (discussing the dire state of the drought during the winter of 2021-22).

[214] *See* Henry Fountain, *The Western Drought Is Bad. Here's What You Should Know About It.*, N.Y. TIMES (Oct. 21, 2021), https://www.nytimes.com/article/drought-california-western-united-states.html [https://perma.cc/Q6XZ-32P2].

[215] *See* Housel, *supra* note 163, at 260.